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ENTOMOLOGICAL NEWS

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ENTOMOLOGICAL NEWS

VOL. LIV DECEMBER, 1943 No. 10

A New Metallic Ant from the Pine Barrens of New Jersey.

By WILLIAM LOUIS BROWN, JR., State College, Pennsylvania.

Monomorium viridum new species

Female. Length 5.3 to 5.7 mm. The distance through the compound eyes as great or greater than the distance from vertex to the apices of the clypeal teeth. The latter distance varies from about .88 to .92 mm. Antennal joints 12 in number. The frons is smooth and convex; the frontal carinae possess outer margins which are nearly or quite parallel. The clypeal teeth are more acute than in the female of *minimum*, incurved, their apices distant from each other by three times their length (two to two-and-a-half times in *minimum*); the clypeal carinae high and sharp, with the space between so concave as to be described as "scooped-out." This concavity is much more extreme than that displayed by *minimum*. Compound eyes large, coarse, and prominent. Ocelli large and very prominent, the color of medium honey.

Thorax more robust than in *minimum*, with the metanotum larger and forming a distinct "hump." The structure of the thorax in other particulars is much the same as in *minimum*, with an epinotum evenly rounded in profile.

Nodes of the petiole and postpetiole higher than those of *minimum*, the former being markedly compressed in an antero-posterior direction. The petiole bears a prominent ventral keel with a downward-directed spine or process which varies greatly in size and shape, rarely absent, but more often enlarged and acute. When present, this spine springs from the anterior third of the petiolar keel. The profile view of the petiole from behind reveals a slight concavity of the upper margin, coupled with a

greater width in the dorsal half of the node than in the ventral half. Viewed from the side, the postpetiole appears larger in relation to its petiole than does that of *minimum*. The gaster is large, robust, and oval in shape.

The large, strong wing fragments on most of the females indicate the former presence of well-developed flight apparatus.

Seen from the front, the whole head is striated strongly and regularly in a longitudinal direction, the striae finally curving and passing just outside of and over the occipital angles. The mandibles, frontal area, clypeal teeth and their immediate bases, a small space just outside each lateral ocellus, and a small space on the vertex are all smooth and shining. The triangular area enclosed by the ocelli is striated transversely, as is the space just behind the ocellar trio, the latter striae extending laterally to curve posteriorly just inside the occipital angles. Coarse, often elongate punctures are interspersed with the striae in the areas of the vertex, the occipital angles, and just inside the compound eyes.

The pronotum, scutum, mesothoracic pleuro-ventral fusion sclerite, and the major portion of the scutellum smooth and shining, with numerous small, regular punctures. When viewed laterally, the scutellum is seen to be edged with faint striations. A number of fine, very regular striations start in the region of the metathoracic fusion segments and continue horizontally along the sides of the epinotum, from thence traversing the major portion of the epinotal face and imparting to it the "ladder-like" resemblance seen when the epinotum is viewed from behind and above.

The petiole and postpetiole exhibit regional sculpture varying from disordered rugosity on the sides of the nodes to fine, even, curved striations on the posterior faces, while the anterior faces are smooth and shining. The gaster is smooth and shining and bears numerous scattered punctures on the dorsum. Each of the first three gastric segments bears a narrow band of fine, pebbled reticulation on its posterior border. In addition, several of the more posterior segments bear varying areas of fine, curving striations.

Hairs creamy white; conspicuous and abundant, especially on the head and antennae, less so on the dorsum of the gaster. The hairs are more abundant than in *minimum,* and seem to be relatively more conspicuous and slightly longer than those of the latter. Pubescence absent or scanty.

Wing fragments hyaline, covered rather densely with short, appressed hairs.

Color of the head, with the exception of the mouthparts, is a dark metallic green which is most intense on the frontal and dorsal regions. The thorax is basically of a deep ferruginous color, though very large central areas of each sclerite are impregnated with varying degrees of green. The scutum is of a very deep olivaceous green metallescence. The declivity of the epinotum, upper surfaces of the petiolar and post-petiolar nodes, femora, tibiae, and antennal clubs are tinged with a fainter green varying with the light. Tarsi, antennal scapes, and mandibles ferruginous. The entire gaster is highly polished, with distinct, dark metallic green and blue tones. This description was made in bright sunlight (direct), and was done with the aid of a 40 × binocular magnifying glass.

Holotype.—Female; Lakehurst, Ocean Co., NEW JERSEY; August 23, 1940; W. L. Brown); [Acad. Nat. Sci. Philadelphia, Pa., No. 10561].

Worker. Total length 1.8 to 2.8 mm. The head, from tips of clypeal teeth to vertex, is approximately .53 mm. in length, while the width through the eyes varies from .42 to .46 mm. Clypeal teeth more prominent than in *minimum* (Buckley), with more acute apices. The clypeal carinae, of which the teeth are a continuation, are much higher and sharper than the same structures in *minimum,* and the concavity between them is correspondingly deeper. The teeth are noticeably incurved, with no evident swelling of the bases. The posterior border of the head is slightly concave when seen from the front. Antennal joints are twelve in number; otherwise, the head is much as in *minimum.*

Thorax low and gently rounded as in *minimum,* though a few individuals possess an epinotum which is very slightly more

angular in profile than were the specimens of *minimum* studied, suggesting a transition in this respect to *carbonarium* and its subspecies *ebeninum*.

The nodes of the petiole and postpetiole are higher in relation to their antero-posterior thickness than are those of *minimum*, this conformation causing the postpetiole to be much greater in bulk relative to the petiole than is the postpetiole of *minimum* referred to its petiole. The altered height antero-posterior thickness ratio is achieved by a marked front to rear compression, presenting evidence of a relationship with *carbonarium* and *ebeninum*. The ventral keel of the petiole tends to be both narrow and straight. The gaster is larger and more bulky in profile than in the worker *minimum*, is evenly rounded and oval in profile.

The head is smooth and shining with scattered punctures, except for the few striae running upward fanwise from the mandibular insertions and a few that are oriented longitudinally on the frontal carinae. A few short longitudinal striae also sit astride the upper rounded fossa of the frontal area. The lower halves of the sides of the thorax bear faint striae which continue around the base of the epinotal declivity and are more or less horizontal to the axis of the insect. The gaster is smooth and shining.

The hairs are, on the average, longer than those found on *minimum*, whitish in color. These are scattered rather sparsely over the dorsum and sides of the body, where they are most numerous on the gaster, which latter also bears a few hairs on the venter. There is a noticeable development of gular ammochetae. Pubescence very scarce.

The color in most specimens is a deep brown overlaid on the dorsum of the body and the facial aspect of the head with a greenish metallescence. In the best lights, the green color appears to be strongest on the vertex of the head, the dorsum of the thorax, and especially so on the gaster. The mouthparts and appendages are of a lighter brown color, the greenish reflections being evident on the antennae and often on the legs. The green coloration is nowhere as definite as that of the female,

but approaches that of typical specimens of *Macromischa squamifera* in the possession of the author. The metallescence survives in the dead specimen after long immersion in alcohol and is not noticeably heightened by the addition of glycerine. A few specimens lack most or all of the metallescence in a dead and dried state. Possibly these are teneral. Alive and to the naked eye, the workers appear jet-black, as do those of *minimum*.

Ergatotype.—Worker, with same data as for female holotype.

Described from workers and (often only partially) dealate females taken August 25, 1940, and workers taken June 14, 1942, from about ten nests in yellow and white sand among the scanty, low weeds of a roadside strip within the limits of Lakehurst, Ocean County, NEW JERSEY. The nests were apparently restricted to the narrow strip, which is about 70 feet long. The craters were large, 5 to 8 inches in diameter, compared to the smaller ones I have seen of *minimum*, which are usually not half as large. On the first date mentioned above, a dry, sunny day, one to five queens were found in each nest, while on the second date, which was rainy, only workers could be found. The colonies were extremely populous.

"Associated" at varying distances were nests of *Aphaenogaster treatae, Leptothorax texanus* subsp. *davisi, Trachymyrmex septentrionalis,* and *Dormyrmex* (*Conomyrma*) *pyramicus*. The situation is now greatly changed due to the encroachment of the road and nearby residences with their cleared spaces, but closely adjacent groves of pitch pines (*Pinus rigida*) and other characteristic vegetation testify to the fact that the area once must have been the same as the typical pine barren forest completely surrounding the town. If so, *viridum* should be expected to turn up elsewhere in the barrens. That such energetic collectors as Wheeler and Davis should have missed it in their extensive collecting around the town's outskirts is probably due to the extreme superficial resemblance to *minimum* of the worker phase; the common *minimum* is found everywhere in the barrens.

This insect presents characters which ally it on the one hand with *Monomorium minutum* subsp. *minimum* and on the other with *M. carbonarium* and its race *ebeninum*. It differs from

both in its larger size, green coloration, conformation of clypeus and clypeal teeth, and in sculpture. In the form of its petiole it resembles *carbonarium* and *ebeninum,* but the thorax is much as in *minimum,* which it also resembles in having a winged female caste. The female may be distinguished at once by the naked eye because of the metallescence of the gaster, which surpasses in intensity any other green that I have yet seen in the *Formicidae.*

I wish to thank Drs. Frank McKim Swartz and Stuart W. Frost for their loans of equipment and advice and Dr. Wm. S. Creighton for permission to examine related species in his collection and also for advice.

Note Regarding Authorship of Hexagenia limbata (Serville) (Ephemeroptera).

F. Earle Lyman, Norris, Tennessee.

Most North American mayfly workers have been for some years consistently ascribing the authorship of *Hexagenia limbata* (Serville) to Guerin. Since this *Hexagenia* is the most common of our Great Lakes species, it seems that attention should be called to this fact.

Although Guerin [1] was author of the book in which the original description appeared, he definitely gave to Serville credit for writing the specific description and right to authorship. His statement to this effect is quoted as follows: "Cette espece est nouvelle. Voici la description que M. Serville en a faite." Moreover, in citing the species name for the first time immediately above the specific description, Guerin placed Serville's name in abbreviation after it, thus *"Ephemera limbata* Serv." Most European workers have given Serville proper recognition as author of the species.

Dr. E. O. Essig, Professor of Entomology, has been appointed head of the division of Entomology and Parasitology at the University of California, Berkeley, California.

[1] Iconographie du regne animal de G. Cuvier. III. Insectes. 1829.

Some Lycaenid Aberrations (Lepidoptera: Lycaenidae).

By Harry K. Clench, Cambridge, Mass.

The following aberrant Lycaenidae have been collected locally over a period of five years. Because of the interest attached to such variants by genetically-minded Lepidopterists, they were thought worthy of recording. Following the current and very wise practice, in this country, no names have been assigned these abnormal specimens.

Strymon melinus humuli Harris

A single female taken in the Blue Hills Reservation, Milton, Massachusetts, May 9, 1943, differs remarkably from the normal of this species in the presence of a patch of fulvous scales in the center of the fore wing above, between Cu_1 and Cu_2, with a few between M_3 and Cu_1. I have never observed even the slightest tendency towards this type of variation in any specimen of any of the several subspecies of *melinus,* but Mr. W. Prescott Rogers, of Fall River, Massachusetts, writes me that "Specimens [of *humuli*] with the patch of orange scales on the fore wing have been frequently taken by me."

Incisalia polios Cook and Watson

An aberrant female of this species was taken on Big Blue Hill in the Blue Hills Reservation, Milton, Massachusetts, on May 5, 1942. It differs from typical *polios* in being uniformly pale yellow fulvous above, with the veins outlined in black. Below the whole aspect is paler than normal, particularly on the fore wing, where the predominant color is yellow-fulvous. The costa is edged with black. The discal line, which usually consists of a black-brown line outwardly edged with white is here merely a thin, tortuous, white thread-line.

Incisalia niphon niphon Hübner

A male of this species, same data as preceding specimen, differs from normal males in having the fore wing above edged on the outer margin with a band of whitish scales, interrupted by

the veins, which are black through it. This band is less pronounced on the hind wing, and consists merely of a series of obscure internervural patches of whitish scales. Below, the specimen is normal.

LYCAENA EPIXANTHE EPIXANTHE Boisd. and Lec.

A male was taken near Norwood, Massachusetts, July 3, 1941, in which the violet of the upperside of the fore wing is confined to the cell, and a small area immediately costad and apicad of it. It is similarly restricted on the hind wing.

LYCAENA HYPOPHLAEAS HYPOPHLAEAS Boisd.

A male from Burlington, Massachusetts, August 2, 1940, has the post-discal spots of the fore wing below obsolescent, those in M_3-Cu_1 and Cu_2-2A being entirely gone, and the remainder reduced. The corresponding spots on the hind wing are absent altogether. Above, the specimen is normal, except that the post-discal spots are slightly smaller.

EVERES COMYNTAS COMYNTAS Godart

A male of this species (Boston, Massachusetts, August 7, 1939) has the orange spots on both surfaces of the hind wing colored pale cream.

A number of individuals (Blue Hills, Milton, Massachusetts; Mansfield, Massachusetts; Bolins Mills, Ohio) have been taken in which the discal and basal spots are enlarged and heavier. This apparently is the aberration named *watermani* by Nakahara. Two Blue Hills males of the spring brood (*meinersi* Field) are similarly differentiated.

LYCAENOPSIS PSEUDARGIOLUS Boisd. and Lec.

Variations of this species occur almost without limit, so that only the more striking will be given. All are the spring form *lucia* Kirby.

1. Male, Blue Hills, Milton, Massachusetts, April 18, 1941. Differs in having the outer margin of the fore wing rather broadly black from apex to Cu_1, approaching normal female marking. The black is thickest (about 2 mm.) at the apex, and diminishes to complete obsolescence at Cu_1.

2. 3 males, Blue Hills, April 19, 1941; 1 female, Cambridge, Massachusetts, May 9, 1943. Underside of fore wing with the discal spots tending towards complete confluence. Reaches the maximum development in the Cambridge female, in which they have united to form a large central patch similar to that found on the hind wing.

3. 4 females, Blue Hills, as follows: 2, April 19, 1941; 1, April 28, 1942; 1, May 9, 1943. Differ from normal females in having a central black patch on each wing above, particularly on the fore wing. The 1943 specimen has only a faint indication of the fore wing patch, and none whatsoever on the hind wing. A similar female is in the collection of the Museum of Comparative Zoölogy, from Long Island, New York.

Note on Podium fulvipes in Florida (Hymenoptera, Sphecidae).

In a paper on Florida Sphecinae published in ENTOMOLOGICAL NEWS for December, 1942, it was stated on page 280 that no species of the Tribe Podiini had as yet been reported from Florida. The capture of a female specimen of *Podium fulvipes* Cress. at Doe Lake near Moss Bluff not far from Ocala, July 30, 1943, by Mr. J. E. Gillaspy, as it was emerging from a hole about breast high in a wooden post, now adds this hitherto unrepresented Tribe to the list of Florida Sphecinae.—H. T. Fernald.

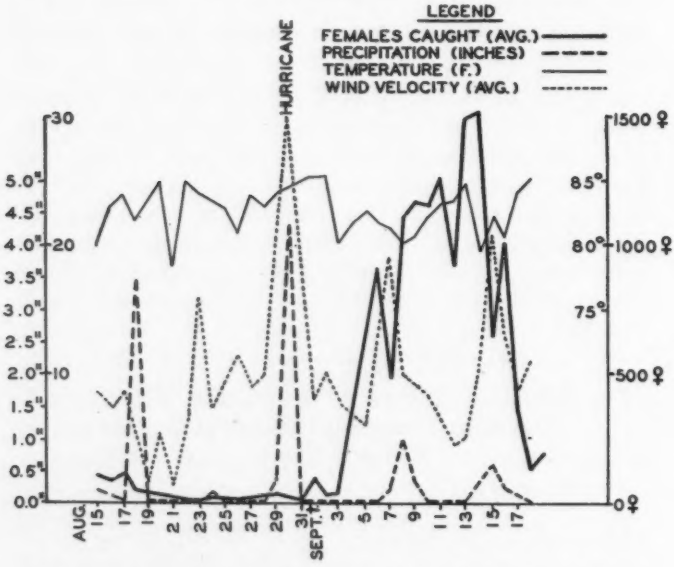
The Effect of Winds of Hurricane Velocity on Mosquito Trapping Results at Corpus Christi, Texas.

By WILLIAM M. GORDON and ROBERT Z. PAGE,
Corpus Christi, Texas.

During the months of greatest mosquito activity a peak catch may be expected in the traps five to seven days after a rain. The trapping results recorded on the graph are an average of the results of seven New Jersey type electric mosquito traps.

The number of mosquitoes represents the females taken per trap per night from 7 P.M. to 7 A.M.

It may be noted that the peak catch expected within a week after the rain of August 18th was entirely eliminated due to high winds reaching hurricane velocity. On this date gusts of wind reached a velocity of 100 m.p.h. The peak following the rain of August 30th was expected September 6th or 7th but winds of nearly 20 m.p.h. caused a decrease of about two-thirds of the expected trapping results. Due to the retarding of the peak by about one week and the mortality of the adult mosquitoes during the time lapse, the actual peak was less than it normally would have been. During this entire period the temperature was never greater than 85° F. or less than 78° F.*



* For an extensive analysis of these factors see Rudolfs, W. Observations on the relation between atmospheric conditions and the behavior of mosquitoes. *New Jersey Agric. Exp. Sta., Bull.* 388. 32 pages. 1923. —The Editors.

Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae). Part II.

By CHARLES P. ALEXANDER, Massachusetts State College, Amherst, Massachusetts.

The preceding part under this title was published in 1943 (Ent. News, 54: 45–51). At this time I wish to characterize a few further species that have been discovered in extensive series of these flies from Idaho, Washington and California. Except where indicated to the contrary, the types of the novelties are preserved in my personal collection of these flies.

Limonia (Dicranomyia) linsdalei n.sp.

Most similar to *L.* (*D.*) *libertoides* (Alexander) and *L.* (*D.*) *stigmata* (Doane), differing in the slightly patterned wings and in the structure of the male hypopygium, especially the very peculiar lobe of the basistyle. The general appearance of the paratype is quite different from that of the type, but from the structure of the male hypopygium the two flies are conspecific. The species is named in honor of the collector of the holotype, Dr. Jean M. Linsdale, of the Frances Simes Hastings Natural History Reservation, Monterey, California.

General coloration gray, the praescutum with a darker brown median stripe, most evident in front; antennae black throughout; halteres short, the apex of knob darkened; wings whitish, the prearcular field even clearer white; stigma brown; a very restricted brown seaming along cord, outer end of cell *1st* M_2, *Cu* and *1st A;* vein Sc_1 a little longer than R_2; basal section of R_{4+5} long, approximately two-thirds the length of *Rs*; male hypopygium with the ventromesal lobe of basistyle at extreme cephalic end of sclerite, narrow, before apex constricted into a pale bulbous tip.

Length, ♂, about 5.5–7 mm.; wing 6–8 mm.; ♀, about 6 mm.; wing 6.5 mm.

Rostrum and palpi black. Antennae black throughout; flagellar segments oval; longest verticils somewhat shorter than the

segments. Head gray, the central portion of vertex extensively infuscated; anterior vertex broad, nearly three times the diameter of scape.

Pronotum dark brownish gray. Mesonotum dark gray, the praescutum more infuscated medially to produce a more or less distinct stripe, most evident in front; lateral stripes lacking; scutellum a little paler; lateral borders of mediotergite and ventral edge of pleurotergite a little darker. Pleura dark gray; dorsopleural membrane uniformly darkened. Halteres short; apex of knob darkened. Legs with coxae dark brown, heavily gray pruinose; trochanters obscure yellow; femora light brown, scarcely more darkened near the tips; tibiae and basitarsi pale brown, their tips very narrowly darkened; outer tarsal segments brownish black. Wings with a whitish ground, the prearcular field even clearer white; stigma brown; a very restricted brown pattern, including narrow seams at origin of *Rs*, along cord and outer end of cell *1st* M_2, and as seams along veins *Cu* and *2nd A*; cell *Sc* chiefly infuscated, the outer end paler; veins brown; bullate areas along cord and outer end of cell *1st* M_2 conspicuous. In the paratype, the wing pattern is much less conspicuous. Venation: Sc_1 ending opposite or immediately beyond the origin of *Rs*, Sc_2 a short distance from its tip so Sc_1 alone is a little longer than R_2; *Rs* weakly angulated and very slightly spurred near origin; R_2 in transverse alignment with the short free tip of Sc_2; basal section of R_{4+5} long, from three-fifths to two-thirds *Rs*; cell *1st* M_2 about as long as vein M_4 beyond it; *m–cu* at fork of *M*; vein *2nd A* nearly straight until near its outer end.

Abdomen dark reddish brown, the lateral tergal borders more darkened; hypopygium darkened, the tergite and ventral dististyle paler; basal sternites pale, their caudal borders more darkened; outer segments more darkened. In female, abdomen more uniform dark brownish gray. Ovipositor with cerci elongate, straight, their tips acute. Male hypopygium with the tergite transverse but relatively long; posterior margin gently emarginate, the exact border poorly defined, delimited by a concentration of major setae on the lobes; median area of emargina-

tion with two setae; remainder of disk with delicate setulae only. Basistyle with the ventromesal lobe at extreme cephalic end of style, unusually slender, darkened at base, before apex narrowed and constricted into an oval bulbous portion with scattered setae of moderate length. Dorsal dististyle a long, gently curved, darkened rod that narrows very gradually to a long acute point. Ventral dististyle with the body small, subcircular in outline, its area less than that of the basistyle; rostral prolongation darkened, appearing as a long, gently curved point; rostral spines two, placed close together at about one-third the length of prolongation, arising from individual tubercles; spines only a little more than one-third the length of prolongation. Gonapophyses with mesal-apical lobe elongate, nearly straight, the darkened tips a trifle outcurved.

Holotype: ♀, Frances Simes Hastings Natural History Reservation, Monterey, CALIFORNIA, April 6, 1938 (Linsdale). *Allotopotype:* a broken ♂, March 13, 1938. *Paratype:* ♂, Avalon, Catalina Island, California, March 19 (Cockerell). Type returned to Dr. Linsdale.

Rhabdomastix (Sacandaga) trichophora n.sp.

Closest to *R* (*S.*) *flava* (Alexander), of northeastern North America, and *R.* (*S.*) *coloradensis* (Alexander), of the central and southern Rocky Mountains. It differs in the conspicuously dilated wings of the male, with the macrotrichia of the veins unusually abundant, and in the venation, as the considerably longer *Rs.*

General coloration yellow, the mesonotum pale reddish brown; head above obscure yellow, the vertex with a brown spot; halteres pale yellow throughout; legs with the femora and tibiae yellow, the tips narrowly infuscated; wings (male) broad, especially opposite cell *1st A*, pale yellow, without pattern; macrotrichia of veins beyond cord unusually numerous, including a series of about twelve on vein R_4, on both surfaces of vein; Sc_1 more than one-fourth as long as *Rs.*

Length, ♂, about 5.8 mm.; wing 6.8 mm.; antenna about 1.3 mm.

Rostrum brownish yellow; palpi brown. Antennae of moderate length; scape and base of pedicel yellow, remainder of organ black; two basal flagellar segments short-cylindrical and more or less fused, the succeeding segments becoming more elongate, especially the outer ones; verticils of outer segments long and conspicuous, exceeding the segments in length. Head broad, obscure yellow, the center of vertex narrowly but distinctly darkened; anterior vertex broad.

Pronotum light yellow, very vaguely darkened sublaterally. Mesonotal praescutum pale reddish brown, with a somewhat darker median stripe, the surface very sparsely pruinose; humeral and lateral portions light yellow; posterior sclerites of notum pale reddish brown. Pleura reddish brown, the dorsopleural region light yellow. Halteres pale yellow. Legs with the coxae reddish yellow, the fore pair a trifle darker; trochanters yellow; femora and tibiae yellow, the tips narrowly infuscated; tarsi yellow, the outer segments infuscated. Wings (male) broad, especially opposite cell *1st A*; pale yellow, the costal border a trifle more saturated; no vestige of a stigma; veins yellow. Veins beyond cord with conspicuous macrotrichia, as follows: R_4 about twelve, on both surfaces, involving all but extreme base of vein; R_5 a long complete series the entire length of outer section, on both surfaces, and exceeding sixty in number; veins M_{1+2}, M_3 and M_4 with rows of trichia except on their restricted basal portions; a few scattered trichia on distal section of Cu_1. Venation: *Sc* long, Sc_1 ending about opposite four-fifths *Rs*, Sc_2 far from the tip of Sc_1, the latter more than one-fourth as long as *Rs*; vein R_3 suberect; R_4 of moderate length, cell R_3 at margin subequal to cell R_4; *Rs* unusually long, about twice R_{2+3+4}; basal section of M_3 long, much exceeding the basal section of M_{1+2}; both sections of M_{3+4} subequal.

Abdominal tergites yellow, weakly darkened medially; a weak darker brown subterminal ring; sternites clearer yellow. Male hypopygium with the outer dististyle slightly narrower than in *coloradensis*.

Holotype: ♂, Mount Rainier, WASHINGTON, altitude 2,900 feet, July 28, 1940 (H. & M. Townes).

Cryptolabis (Cryptolabis) pachyphallus n.sp.

Entirely different from the only other northwestern Nearctic species so far described, *C.* (*C.*) ***bisinuata*** Doane. Readily distinguished by the structure of the male hypopygium, especially the shape of the retracted dististyle.

General coloration blackened, the postnotum and thoracic pleura variegated with yellow; legs infuscated, the femoral bases obscure yellow; wings subhyaline, restrictedly patterned with brown; male hypopygium with the dististyle retracted, its apex not reaching the posterior level of the sternite, the outer margin with a lateral lobe or flange.

Length, ♂, about 3–3.2 mm.; wing 4–4.1 mm.; ♀, about 3.3–3.6 mm.; wing 4.5–5 mm.

Rostrum and palpi black. Antennae short, dark brown to black; flagellar segments oval. Head obscure yellow, the vertex extensively darkened medially.

Pronotum darkened medially, paler on sides; pretergites yellow. Mesonotal praescutum almost uniformly blackened, sparsely pruinose, the very restricted humeral region and lateral margin more yellowish; posterior sclerites of notum blackened, with obscure yellow areas on outer posterior portion of each scutal lobe and a common spot on dorsal pleurotergite and outer lateral portion of mediotergite; in cases, the entire thorax more uniformly blackened. Pleura blackened, gray pruinose; dorsal sternopleurite narrowly obscure yellow to produce a narrow longitudinal stripe. Halteres relatively long, stem obscure yellow, the knob somewhat clearer yellow. Legs with the coxae brown, the trochanters a little paler; femora obscure yellow basally, the very broad apices gradually darkened, on the fore pair very extensive, including more than the distal half; on posterior legs more restricted; tibiae light brown, the tips narrowly darker; tarsi brownish black. Wings subhyaline, sparsely patterned with brown, including ill-defined seams on *Cu*, anterior cord and certain veins beyond cord, especially R_5; stigma and axillary region brown; prearcular and costal fields more whitened; veins brown, pale in the light-colored areas. Macrotrichia in distal portions of cells R_3 to M_3, inclusive, occupying

the central portions of the cells. Venation: *Rs* strongly sinuous, oblique, to subperpendicular; *r–m* connecting with *Rs* shortly before its fork; *m–cu* nearly its own length beyond the fork of *M*.

Abdomen brownish black, the distal ends of the genitalia of both sexes restrictedly more reddish brown. Male hypopygium with the dististyle retracted, its apex not reaching the posterior level of the sternite; inner or mesal portion of basistyle heavily sclerotized, produced laterad into a strong point. Dististyle a flattened blade that gradually narrows to the acute tip, its surface with numerous scattered setae; on outer margin of style with a lateral lobe or flange. Lateral and submedian hypopygial lobes conspicuously hairy, the former rounded-oval, with unusually long setae; submedian lobes oval, with more abundant but shorter bristles. Aedeagus moderately stout.

Holotype: ♂, Riggins, IDAHO, August 10, 1938 (J. W. Zukel). *Allotopotype:* ♀. *Paratopotypes:* 8♂♀.

The Neon-sign Dance of the Water-boatman, Tricocorixa verticalis Fieb. (Hemiptera).*†

By PHIL RAU, Kirkwood, Missouri.

I was attracted to a mass of thousands of these water-boatmen in a very active dance before a neon sign of a drug store at Tiptonville, Tennessee, near Reelsfoot Lake, on the night of July 12, 1937. The bottom of the sign was about ten feet from the ground, and a "ball" of these insects—I had better say a "football" because that was the size and shape of the mass—was in constant motion, rapidly going in and out of the invisible boundaries of their little world in front of the lighted red and blue letters.

* Dr. J. F. Abbott, in Hemiptera of Connecticut (State Geol. and Nat. Hist. Survey, Bull. 34: 386, 1923) says Corixids are to be found in shallow brooks, ponds, and puddles; they are as a rule strong fliers and often migrate in great swarms from pond to pond. At such times they not infrequently come to the light.

† Identified by H. S. Barber.

The performers, in constant motion, kept together in this concentrated mass for several minutes; then they swept to a region below the sign, spreading themselves out over a greater area. When they reached a point about five feet below the lights, they continued to spread until they covered a space of about four feet wide by two feet high, dancing frantically all the while. They were now out of the glare of light, but they danced just as wildly as if they were in it. Without warning, after two or three minutes of this they again swept upward to the place they had left in front of the red and blue letters, the mass gradually tightening on its upward course into a ball. They repeated the dance again for five or six minutes and then in the same way dropped below to the less lighted area, spreading themselves as they moved.

I watched them for forty-five minutes, from 8:30 to 9:15. They repeated this same performance time and time again, without any perceptible variation, and I tried to get the meaning of it all. Was it a mating dance? If so, mating must have occurred elsewhere, for none of it took place while I watched them. What influence did the neon light have on their behavior, and what would the performance have been in the presence of ordinary light? May it be that in bobbing down to darker regions, they sought relief from the intense light? But again if this is true, why did they dance into it again and yet again? The performance on the whole may, after all, have been nothing but *kinderspiel*—insects at play and, if I may say so, enjoying life to the utmost.

Notes on Some Species of Aphelonotus (Hemiptera: Nabidae).

By HALBERT M. HARRIS, Ames, Iowa.

Through the kindness of Dr. A. Avinoff I have had the privilege of examining some miscellaneous *Nabidae* belonging to the Carnegie Museum. Among the specimens from South America are examples that extend our knowledge of *Aphelonotus* Uhler.

APHELONOTUS MEDIUS Harris, Bull. Brooklyn Ent. Soc., 26: 16, 18. 1931.

This species was described from a unique male specimen taken along the Madeira River, above Manaos, Brazil. The holotype is in the U. S. National Museum. It is now possible to record a nice series of specimens, both males and females, from Santarem, Brazil, H. H. Smith Collector, and from Taperina, Brazil, H. H. Smith.

A. medius agrees with the much larger, *A. major* Harris, and differs from all other known species of the genus in the much greater length of the post-ocular part of head, measured to basal constriction, as compared to the interocular width.

FEMALE: Antennae about as in male, thickly pilose; the third segment about as stout as second, slightly sinuate, faintly enlarged at middle and at apex, with a whitish sensory point, from which arises a long fine hair, on the upper surface at the median enlargement; segments four and five very fine; proportions, 16:30:27:29:30. Pronotum twice as wide at base as its median length (71:35). Front trochanters underneath toward the apex with two or three piceous teeth and intermediate coxae with one or two. Venter finely, rather thickly pilose; the apical margin of the last segment slightly, angularly convex at the median line. Length, 4.8 mm.; width, 1.4 mm.

Allotype, female, Taperina, Brazil, in collection of Carnegie Museum.

APHELONOTUS CONFUSUS Harris, Bull. Brooklyn Ent. Soc., 26: 16. 1931.

There is in the Carnegie Museum material a nice series of specimens from Santarem, Brazil, and Taperina, Brazil, that I take to be *confusus* Harris. In general they are darker than the paratype before me. Some specimens have a distinct median canal on the scutellum and thus in this respect, as in most others, agree with *A. simplus* Uhler. As noted in the original description, *confusus* is very close to *simplus,* but in all the specimens I have seen it is possible to segregate the two forms by comparison, and primarily on the basis of eye size and width

of the vertex. In *confusus* the width of the vertex is slightly less than half the width of head.

APHELONOTUS FRATERCULUS Harris, Bull. Brooklyn Ent. Soc., 26: 18. 1931.

Several specimens of this form from Bahia and Para, Brazil, are at hand. The species has previously been known from Panama and Ecuador.

Eye-Color Changes in Mayflies of the Genus Stenonema (Ephemeridae).[1]

F. EARLE LYMAN, Tennessee Valley Authority, Norris, Tennessee.

While pursuing ecological studies on lake-inhabiting species of mayflies, the observation was made that the eyes of individuals of certain species of *Stenonema* were of one color during the day and of a different color at dusk or after dark. To the writer's knowledge this phenomenon has not as yet been recorded for mayflies and, as will be pointed out, the fact has a definite taxonomic significance. These eye-color changes were observed only among species of *Stenonema* (Heptageniidae); the extent and degree to which this phenomenon may occur throughout the mayfly group as a whole has not been ascertained.

Each of the large compound eyes in mayflies is divided transversely into an upper portion having large facets and a lower portion consisting of smaller facets. The upper portion of the eye is usually the larger and very often the dividing line between the two is distinct. The eyes of the male are usually much larger than those of the female.

Male or female specimens of *Stenonema femoratum* (Say) collected during the day resting on vegetation had very pale, bluish-grey eyes both dorsally and ventrally. The eyes of *S. interpunctatum* (Say), under similar conditions, have pale,

[1] A contribution from the Biological Station and Department of Zoology, University of Michigan.

yellowish-green eyes. However, specimens taken in the evening while swarming, possessed very dark, bluish-black eyes in both species. Individuals collected in the early part of the evening resting on vegetation just before swarming had eyes in part light-colored and in part dark, i.e., in color the eyes presented the appearance of being halfway between those individuals whose eyes were entirely pale-colored and those whose eyes were completely dark. This same condition was observed on dark, cloudy days among specimens found in shady places where the intensity of light was even further subdued.

The taxonomic import of these facts is emphasized by reference to the descriptions given for species of *Stenonema* by Traver in Needham, Traver, and Hsu.[2] Here, mention is often made of the fact that eye color in living specimens is generally either pale, bluish-grey or pale, yellowish-green, depending upon the species. In several species eye color is not described. In on species only (*Stenonema birdi* Traver) is there any indication that dark eyes are ever present among the members of this genus. According to Traver's statement, the eyes are "bluish black in holotype, greyish blue in some of paratypes (in alcohol)." No further statement or explanation appears. It should be noted that the color of eyes has been used extensively in the past by several mayfly workers as a distinguishing specific character in several different genera of mayflies in both dried and alcoholic material. Until a more extensive survey has been made as to the possibilities of eye-color changes in other groups of mayflies, it would seem best to use this character with caution.

Since it seemed obvious that light was the causal factor that produced the color change in the eyes and with a view to discovering the relationship of light to this phenomenon, a series of simple experiments was performed with living material.

Adult specimens of males and females of both *S. femoratum* and *S. interpunctatum* were collected during a bright day and each was placed in an individual vial. All possessed light-colored eyes. Some were placed in complete darkness, while

[2] The Biology of Mayflies. Ithaca, N. Y. 1935.

others were allowed to remain exposed to strong daylight. Within an hour the eyes of those specimens of both species kept in the dark had changed to a deep, bluish-black regardless of sex. When again exposed to daylight, the eyes turn pale-colored. Those specimens of both species which had remained continuously exposed to light did not show a color change during the remainder of the day. This procedure was repeated a number of times using different specimens with the same results. A differential change between the dorsal and ventral portions of the eye was not noted, both the upper and lower portions changed simultaneously.

Experiments were also performed using artificial electric light at night. Individuals with light eyes were collected during the day. The eyes of all specimens turned to the dark color at the approach of night. When these same individuals were then subjected to the stimulus of artificial light, the eyes again became pale-colored but changed to dark again when the artificial light source was removed. Repetition of similar circumstances produced the same results.

The eyes of the subimagoes of both the species under discussion are normally pale in color, either being a bluish-grey or yellowish-green, respectively. When subimago specimens were subjected to the conditions of either of the experiments described above, an eye-color change was not produced. It was further noticed that those imagoes recently emerged from the subimaginal stage did not change eye color as rapidly as those which were older. These facts seem to indicate that the ability to change the color of the eye is purely an adult adaptation and may be correlated with swarming and mating activities, which take place under conditions of very low light intensities. Small swarms of these species have been seen on dark, cloudy days.

Further experiments were conducted to determine the effects of variable light conditions upon eye-color changes under different types of preservation. When killed and preserved in alcohol, specimens retained that color of eye present at the time of killing, viz., light eyes remained light and dark eyes remained dark. The eyes of such specimens have maintained their orig-

inal color, whether dark or light when killed, even after several years of preservation. However, if the conditions of light were reversed immediately or shortly after the specimens were placed in the alcohol, the eyes were likely to change their color, unless the killing and fixing process was very rapid. The change from dark to light eyes in freshly killed individuals was first observed when specimens with dark eyes were placed in 80 percent alcohol and then allowed to stand under a bright electric light. Pinned specimens invariably turned dark upon drying. However, pale-eyed individuals did not usually become a deep black but rather a dark brown, whereas, dark-eyed individuals retained their original deep-black color when dried. A very marked shrivelling of the eyes occurred in most dried specimens which was not the case when alcohol was used as a preservative. If dark-eyed individuals were placed in the light immediately after killing with cyanide and mounting on the pin, the eyes usually turned pale again; contrariwise, light-eyed specimens usually turned dark if placed in the dark immediately upon killing.

According to the figure of the longitudinal sections of mayfly ommatidia given by Hsu in Needham, Traver, and Hsu (1935, Pl. IX), the eye of a mayfly is evidently of the type that forms an apposition image. Strangely enough the apposition eye is most characteristic of diurnal insects, although not limited to them, while most mayflies are considered as nocturnal. The eye-color changes that have been noted above are probably due to the migration of pigment contained in the iris cells and the movement of this pigment is in response to differences in light intensity.

A Correction: The millipede inadvertently described as *Fontaria kentuckiana* new species (ENTOMOLOGICAL NEWS, liii, p. 167) should have been **Cleptoria kentuckiana** new species. —Nell Bevel Causey.

A New Journal.

In January, 1942, there appeared the first issue of a new journal dealing with general biology. This, the "Revue Canadienne de Biologie," is sponsored by the University of Montreal and has a large international advisory committee. Articles are published in either French or English but with summaries in both languages. The typography and illustrations are excellent. Six numbers appear each year with a minimum total of 500 pages (vol. 1 contained nearly 800 pages). To date articles have appeared by authors in Canada, United States, France, England, Brazil, Venezuela and Chile. The articles are predominantly physiological but not entirely so. Four entomological papers have appeared so far: one on the pigment of beeswax, one on host selection by hymenopterous parasites, one on superparasitism and one on the ecology of the European spruce sawfly.—The Editors.

General Catalogue of the Hemiptera. Fasc. 4. Fulgoridae, part 3, Araeopidae (Delphacidae). By Z. P. Metcalf, 552 pp. Smith College, Northampton, Mass. $5.00. This is another part of that valuable catalogue of the Hemiptera of the World; the first part, on the Membracidae, by W. D. Funkhouser, was published in 1927. Since then the following parts have appeared: Mesoveliidae by G. Horvath, 1929; Pyrrhocoridae by R. F. Hussey and E. Sherman, 1929; Tettigometridae and Cixiidae by Z. P. Metcalf, 1932 & 1936. All but one part, the Mesoveliidae, were the work of American students. This work, or any part of it, is, of course, an indispensible requisite of serious students of Hemiptera, and is reasonably priced. Its style of the bibliographical references is good, lucid and should be a sample for students to follow; although the citation of the volume, number, part and such in arabic with its accompanying colon, may not be agreeable to some. There is a little waste of space in having each reference begin on a separate line, but this is generally more apparent than real.—E. T. Cresson, Jr.

Current Entomological Literature

COMPILED BY THE EDITORIAL STAFF.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of Journals given at the end of the literature. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—ALLAN, P. B. M.—The travel of larvae. [9] 76: 159–64. BATEN & HUTSON.—Precautions necessary in estimating populations of small animals. [12] 36: 501–504. FLETCHER, F. C.—The arrangement of insect specimens in boxes and drawers. [118] 17: 6–7, ill. FLINT, W. P.—1883–1943.—(Obituary). [12] 36: 644–645. HEMMING, F.—The function and powers of the International Commission on Zoological Nomenclature. [Bull. Zool. Nomencl., London] 1: iv–xxvi. International Commission on Zoological Nomenclature: Financial report for the period from Oct. 6, 1936 to Dec. 31, 1942. And an appeal for a fund to continue the work. [Bull. Zool. Nomencl., London] 1: xxvii–xl. HOVANITZ, W.—Geographical variation and racial structure of Argynnis callipe in California. [90] 77: 400–425. JORDAN, K.—Decision to establish the Bulletin of Zoological Nomenclature. [Bull. Zool. Nomencl., London] 1: i–iii. KING, W. V.—Some entomological aspects of troop mobilization. [12] 36: 577–579. SHIELDS & HULL.—The seasonal incidence of sand flies in Florida. [12] 36: 625. Post War Entomology (Editorial). [12] 36: 642–643.

ANATOMY, PHYSIOLOGY, ETC.—DE BACH, P.—The effect of low storage temperature on reproduction in certain parasitic Hymenoptera. [55] 19: 112–19. BARRÉ, R.—Identification du colorant de la cire d'abeille. [76] 1: 485–490. BENDER, J. C.—Anatomy and histology of the female reproductive organs of Habrobracon juglandis. [7] 36: 537–545, ill. FLANDERS, S. E.—Partial oosorption as a possible cause of diploid males in Microbracon hebetor. [90] 77: 479–480. GREIFF, D.—The effect of zinc sulphate upon an inbred popu-

lation of Drosophila melanogaster. [90] 77: 426–441. HARRIES, F. H.—Some effects of alternating temperatures and exposure to cold on embryonic development of the beet leaf hopper. [12] 36: 505–509. HAVILAND, E. E.—Hibernation and survival of the locust leaf miner. [12] 36: 639–640. HOVEY, C. L.—Effects of temperature and humidity on certain developmental stages of the potato tuber moth. [12] 36: 627–628. LUDWIG, D.—The effect of different relative humidities, during the pupal stage, on the reproductive capacity of the cynthia moth, Samia walkeri. [23] 16: 381–387. McDONOGH, R. S.—The variation in adult structure of Luffia ferchaultella (Psychod.). [36] 93: 149–72. MOORE, W.—Some vitamin requirements of black carpet beetles. [7] 36: 483–485. PAQUET, G.—Bioclimatic study of the European Spruce sawfly in Quebec. [76] 2: 149–167. QUAYLE, H. J. The increase in resistance in insects to insecticides. [12] 36: 493–501. ROTH, L. M.—Studies on the gaseous secretion of Tribolium confusum. 2. The odoriferous glands. [7] 36: 397–424, ill. SMITH, ALLEN & NELSON.—Some chemotropic studies with Autographa spp. [12] 36: 619–621. STONE, M. W.—The effect of winter soil temperatures on emergence of adults of the sugar-beet wire worm in cages. [12] 36: 510–515. WOOLEY, T. A.—The metamorphosis of the nervous system of Aedes dorsalis. [7] 36: 432–447, ill. ZALESSKY, G.—Expose sommaires des fondements du changement de la terminologie pour la nervation des ailes des insectes. [Zoolog. Jour. Moscow] 22: 154–69, ill. Russian; French summary.

ARACHNIDA AND MYRIOPODA—BRYANT, E. B.—The salticid spiders of Hispaniola. [26] 92: 445–552 (*). CHAMBERLIN, J. C.—The taxonomy of the False Scorpion genus Synsphyronus with remarks on the sporadic loss of stability in generally constant morpohological characters. [7] 36: 486–500, ill., (k. *). CHAMBERLIN & IVIE.—New gen. & sps. of No. Amer. linyphiid spiders. [Bull. Univ. Texas] 33 (10): 39 pp., ill. MCGREGOR, E. A.—A new spider mite on Citrus in southern California. [10] 45: 127–129, ill. NEVIN, F. R.—Caeculus pettiti, a n. sp. of mite from Virginia. [7] 36: 389–393, ill. SMITH & COLE.—Studies of parasites of the American dog tick. [12] 36: 569–572.

THE SMALLER ORDERS—BOHART, R. M.—New sp. of Halictophagus with a key to the genus in North America. [7] 36: 341–359, ill. KLOTS, E. B.—A dragonfly gynandromorph. [19] 38: 142, ill. STAFFORD, E. W.—Some Venezuelan Mallophaga. [46] 2: 35–58, ill., (*).

ORTHOPTERA—Hayslip, N. C.—Notes on biological studies of mole crickets at Plant City, Fla. [39] 26: 33–46. Knowlton & Roberts.—Orchelium feeding notes. [19] 38: 140–141. Uvarov, B. P.—The tribe Thrinchini of the subf. Phamphaginae, and the interrelations of the acridid subfamilies. [36] 93: 1–92, ill.

HEMIPTERA—China, W. E.—A n. sp. of Microvelia from Trinidad. [108] 12: 121–24, ill. Colton, H. S.—Life history and economic possibilities of the American lac insect, Tachardiella larrea. [Plateau, Flafstaff, Ariz.] 16: 21–32, ill. Davis, W. T.—Local records of brood 17 of the periodical cicada. [19] 38: 121–122. DeLong, D. M.—A new genus—Stoneana—and three new species of Mexican leafhoppers. [7] 36: 448–450, ill. Three n. sp. of Texananus from the western and southwestern United States. [19] 38: 124–127, ill. Ferris, G. F.—Additions to the knowledge of the Diaspididae. [117] 8: 58–79, ill., (*). Funkhouser, W. D.—Membracidae of Guatemala. [7] 36: 455–482, ill., (*). Hayward, K. J.—La oruga de la hoja del algodonero (Alabama argillacea) en Tucuman. [Bol. Est. Agr., Tucuman] 41: 21 pp., ill. Hixon, H.—The tropical bedbug established in Fla. [39] 26: 47. Islas, F.—Notas sobre la variabilidad cromatica en Triatoma picturata. [112] 14: 243–49, ill. Knowlton, G. F.—Nabis alternatus feeding observations. [19] 38: 122. McConnell, H. S.—Notes on the anatomy of the coccid genus Aclerda and descriptions of three n. sps. [10] 45: 106–115, ill. McKenzie, H. L.—The seasonal history of Matsucoccus vexillorum. Notes on M. vexillorum (Margarod). [117] 8: 42–47, ill.; 53–57, ill. Miscenaneous diaspid studies including notes on Chrysomphalus (Diaspid). [Bull. Dept. Agr., Calif.] 32: 148–62, ill. (*). Mazzotti, L.—Triatoma phyllosoma usingeri, a n. subsp. from Mexico. [55] 19: 81–5, ill. Poos & Wheeler.—Studies on the host plants of the leafhoppers of the gen. Empoasca. [3] Tech. Bul. 850: 51 pp., ill. Richter, L.—Catalogo de los Membracidos de Colombia. [58] 4: 405–9, ill. Russell, L. M.—An apparently n. sp. of Paurocephala (Psyllid). [10] 45: 115–120, ill. Sampson, W. W.—A generic synopsis of the hemipterous subfamily Aleyrodoidea. [70] 23: 172–223, (k).

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EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Wanted—Specimens of the genus Calendra (Sphenophorus) from North America. Will exchange Eastern U. S. Calendra or other Coleoptera for desired species. R. C. Casselberry, 302 Lincoln Avenue, Lansdowne, Penna.

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